

REMARKS

Counsel wish to acknowledge with thanks the courteous and helpful interview granted on October 06, 2004. The substance of the discussion at the interview is incorporated in the remarks below.

Applicants respectfully request favorable reconsideration of this application.

Claims 1 and 12-14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraishi et al., U.S. Patent 5,656,582 (Shiraishi). Claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraishi as applied to Claims 1 and 12-14 and further in view of Suzuki et al., U.S. Patent 5,640,769 (Suzuki). Claims 2-11 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraishi and Suzuki as applied to Claims 1 and 12-14 and further in view of Noguchi, U.S. Patent 5,882,122 (Noguchi), and Dunfield et al., U.S. Patent 5,882,122 (Dunfield).

The Office contends that Shiraishi's teaching of a rust-preventive lubricating oil suitable for use in bearings, such as sealed ball bearings, to prevent rust, inhibit generation of cage sound, and obtain good lubricity renders Applicants' claimed roller bearing obvious. The Office acknowledges that Shiraishi's disclosure differs from the claims in not specifically disclosing a lubricating oil

containing an extreme pressure agent and a corrosion preventing agent (page 3, first full paragraph). The Office Action goes on to assert that the oiliness improvers listed by Shiraishi include at least some of the extreme pressure agents that are used in Applicants' claimed roller bearing.

The Office also admits that Shiraishi teaches that when the base oil has a viscosity greater than $100 \text{ mm}^2 \cdot \text{s}^{-1}/40^\circ\text{C}$ the action to inhibit generation of sound is insufficient. Nevertheless, the Office contends that it would have been obvious to make a roller bearing according to Applicants' invention using a base oil having a viscosity of at least $120 \text{ mm}^2 \cdot \text{s}^{-1}/40^\circ\text{C}$ and not exceeding $150 \text{ mm}^2 \cdot \text{s}^{-1}/40^\circ\text{C}$ if a lesser inhibited generation of cage sound is acceptable.

The entire disclosure of a reference must be considered in evaluating what it would teach the skilled practitioner. MPEP § 2141.02. See In re Mercier, 185 USPQ 774, 778 (C.C.P.A. 1975) ("...all of the relevant teachings of the cited references must be considered in determining what they fairly teach to one having ordinary skill in the art" (emphasis in original)).

The stated object of Shiraishi's invention is to provide a rust-preventive lubricating oil which does not have adverse effects on the various characteristics of bearings and the lubricity of greases and which has a

sufficient rust-preventing property (Shiraishi, col. 1, lines 47-50). Consequently, the thrust of Shiraishi's teaching is to avoid compositions that have adverse effects on bearing characteristics or have insufficient rust-preventing properties. Shiraishi sets a practical upper limit of $100 \text{ mm}^2 \cdot \text{s}^{-1} / 40^\circ\text{C}$ for the viscosity of the base oil used in his lubricant compositions, advising that if base oils of higher viscosity are used the inhibition of cage sound generation is insufficient (column 3, lines 13-14). The Office relies on Shiraishi's statement that the viscosity of the base oil is "usually" $10\text{-}100 \text{ mm}^2 \cdot \text{s}^{-1} / 40^\circ\text{C}$ to assert that bearings lubricated with a rust-preventing lubricant having a base oil viscosity greater than $100 \text{ mm}^2 \cdot \text{s}^{-1} / 40^\circ\text{C}$ would be obvious. Whatever conclusion the skilled practitioner might draw from Shiraishi's disclosure regarding a bearing lubricated with a rust-preventing lubricant prepared with a base oil having a viscosity slightly in excess of $100 \text{ mm}^2 \cdot \text{s}^{-1} / 40^\circ\text{C}$, Applicants respectfully submit that a skilled practitioner would have no reasonable expectation that a bearing lubricated with a lubricant having a base oil viscosity of $120\text{-}150 \text{ mm}^2 \cdot \text{s}^{-1} / 40^\circ\text{C}$, i.e., far outside the practical upper limit set by Shiraishi, would have properties suitable for a useful roller bearing.

The Office remarks that a bearing lubricated with a lubricant prepared from a base oil having a viscosity greater than $100 \text{ mm}^2 \cdot \text{s}^{-1}/40^\circ\text{C}$ would be obvious "if a lesser inhibited generation of cage sound is acceptable". However, Shiraishi's disclosure does not support such a conclusion. Shiraishi simply says that in a bearing using such a high-viscosity lubricant, the suppression of cage-generated sound is insufficient, without qualification. Shiraishi does not indicate that any level of sound generation is acceptable. Shiraishi's Comparative Example 11, cited by the Office as an indication that a bearing might be lubricated with a lubricant having a base oil viscosity of $120 \text{ mm}^2 \cdot \text{s}^{-1}/40^\circ\text{C}$ is a comparative example, i.e., an example of what his invention is not. Accordingly, the bearing of Comparative Example 11 is devoid of an oiliness improver and, when tested, exhibited cage sound both initially and after the endurance test. Evidently, standing alone, as in the Office's rejection of Claims 1 and 12-14, Shiraishi teaches that such a bearing has insufficient suppression of cage sound. Indeed, the bearing of Comparative Example 11, even though its lubricant contains an amount of a rust-preventive agent within Shiraishi's claimed range, failed the corrosion test as well — further evidence that Example 11 is intended to teach the practitioner what he should not do, not what he

should do, to achieve the benefits of Shiraishi's disclosed invention.

Furthermore, Shiraishi's examples, both inventive and comparative, provide additional teaching for the skilled practitioner regarding the use of oiliness improvers in lubricants having base oils of different viscosities. Shiraishi discloses sixteen examples of rust-preventive lubricating oils according to his invention (Tables 1 and 2). Examples 1 and 3-16 exemplify inventive lubricants having a base oil viscosity in the relatively low range of $17\text{-}20\text{ mm}^2\cdot\text{s}^{-1}$. A single inventive example (Example 2) discloses a lubricant having a base oil viscosity of $100\text{ mm}^2\cdot\text{s}^{-1}$. In Examples 1-10 no oiliness improver is used. Examples 11-16 illustrate rust-preventive lubricants incorporating various oiliness improvers. Thus, the only exemplified inventive lubricant having a base oil viscosity greater than about $20\text{ mm}^2\cdot\text{s}^{-1}$ uses no oiliness improver. Similarly, among the thirteen comparative examples (Tables 3 and 4), all but Example 11 exemplify rust-preventing lubricants having a base oil viscosity in the relatively low range of $8\text{-}20\text{ mm}^2\cdot\text{s}^{-1}$. As pointed out above, the lubricant of Example 11 (base oil viscosity = $120\text{ mm}^2\cdot\text{s}^{-1}$) incorporates no oiliness improver. In summary, Shiraishi's examples show that oiliness improvers are used in lubricants having a

relatively low base oil viscosity, while in the only two examples using a relatively high viscosity base oil, i.e., Inventive Example 2 ($100 \text{ mm}^2 \cdot \text{s}^{-1}$) and Comparative Example 11 ($120 \text{ mm}^2 \cdot \text{s}^{-1}$), no oiliness improver is used. Applicants respectfully submit that such a practice would suggest to the practitioner that oiliness improvers are not to be used with high viscosity base oils, i.e., those in the claimed range of $120\text{--}150 \text{ mm}^2 \cdot \text{s}^{-1}$.

Furthermore, in view of the absence in Shiraishi of any disclosure of the problem of fretting corrosion or how such a problem might be solved, there is no other motivation for the skilled practitioner to depart from the clear teachings of Shiraishi regarding suitable base oil viscosity for roller bearing lubricants. Indeed, standing alone, Shiraishi teaches away from using lubricants having a base oil viscosity greater than $100 \text{ mm}^2 \cdot \text{s}^{-1}/40^\circ\text{C}$, especially as great as the claimed range of $120\text{--}150 \text{ mm}^2 \cdot \text{s}^{-1}/40^\circ\text{C}$.

Moreover, the bearing claimed in Claim 1 of the application also incorporates an extreme pressure agent. The incorporation of such an agent to achieve a benefit not taught or suggested by Shiraishi is another distinction from Shiraishi's teaching. The Office contends that because Shiraishi incorporates an oiliness improver in his rust-preventive lubricant, and his listed oiliness improvers

include some of the extreme pressure agents incorporated in the lubricant used in Applicants' claimed bearings, the claimed bearings would have been obvious to the skilled practitioner. However, Shiraishi's list of oiliness improvers also includes several compounds and classes of compounds, e.g., higher alcohols, carboxylic acids, such as oleic acid, and amines, such as stearyl amine, which are not extreme pressure agents. Applicants' specification makes it clear that not all materials that function as oiliness agents are also extreme pressure agents. Oiliness agents, which are optional ingredients in the lubricants used to prevent fretting corrosion in Applicants' claimed bearings, are listed at page 9, lines 9-13, of the application, while extreme pressure agents, which are claimed ingredients, are listed separately at page 10, lines 10-13. Consequently, because Shiraishi's disclosure makes no distinction among his listed oiliness improvers, it is inadequate to teach the skilled practitioner how to prevent fretting corrosion in roller bearings by using a lubricant incorporating an extreme pressure agent. It is only Applicants' specification that provides the essential information that would enable the practitioner to select an appropriate extreme pressure agent for incorporating into a bearing lubricant to enhance resistance to fretting corrosion. Use

of Applicants' own specification to identify extreme pressure agents among Shiraishi's list of oiliness improvers would clearly be hindsight reconstruction.

In view of the inadequacy of Shiraishi's disclosure to instruct the skilled practitioner or even to suggest a bearing lubricated with a lubricant having a base oil viscosity of 120-150 $\text{mm}^2 \cdot \text{s}^{-1}/40^\circ\text{C}$, Applicants respectfully submit that the rejection is unsupported by the reference and should be withdrawn. Furthermore, Shiraishi's failure to identify extreme pressure agents and their usefulness to achieve Applicants' claimed bearings resistant to fretting corrosion also establishes that Shiraishi's disclosure cannot support a rejection under 35 U.S.C. § 103(a).

As to the rejection of Claim 15 under 35 U.S.C. § 103(a), the secondary reference does not remedy the deficiencies of Shiraishi. Suzuki merely lists a number of oiliness agents including certain organomolybdenum compounds. Like Shiraishi, Suzuki does not mention extreme pressure agents or provide any teaching as to which compounds among the listed oiliness agents might be useful as extreme pressure agents. Accordingly, this disclosure, individually or combined with Shiraishi, does not make Claim 15 obvious. Accordingly, it is respectfully requested that the rejection of Claim 15 be withdrawn.

As to the rejection of Claims 2-11 under 35 U.S.C. § 103(a), the additional applied references, Noguchi and Dunfield, merely disclose conventional bearing materials and structure in more detail than is given in Shiraishi. Accordingly, Noguchi and Dunfield do add any disclosure to Shiraishi and Suzuki That would make obvious Applicants' claimed roller bearings.

The rejections of the dependent claims are also moot in view of the patentability of Claim 1 as discussed above.

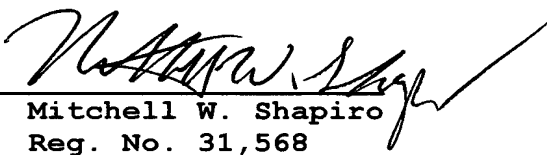
Applicants respectfully request that this application now be passed to issue.

The Commissioner is hereby authorized to charge to Deposit Account No. 50-1165 any fees under 37 C.F.R. §§ 1.16 and 1.17 that may be required by this paper and to credit

any overpayment to that Account. If any extension of time is required in connection with the filing of this paper and has not been requested separately, such extension is hereby requested.

Respectfully submitted,

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